July 19, 2000

Mr. William T. Cottle
President and Chief Executive Officer
STP Nuclear Operating Company
South Texas Project Electric
Generating Station
P. O. Box 289
Wadsworth, TX 77483

SUBJECT: SOUTH TEXAS PROJECT, UNITS 1 AND 2 - DRAFT REVIEW GUIDELINES ON RISK-INFORMED EXEMPTIONS FROM SPECIAL TREATMENT REQUIREMENTS (TAC NOS. MA6057/MA6058)

Dear Mr. Cottle:

The purpose of this letter is to bring you current on U.S. Nuclear Regulatory Commission (NRC) staff activities related to the review of your risk-informed exemption requests and to provide a context regarding staff efforts on risk informing NRC's regulations. Specifically, draft review guidelines, titled "Review Guidelines for STP Exemption Request and Baseline Acceptance Criteria for RIP50 Option 2," prepared by the NRC staff are provided in Enclosure 1 that, when finalized, will be used to assess your request for exemption from certain special treatment requirements of 10 CFR Parts 21, 50, and 100. The purpose for releasing the draft guidelines is to facilitate discussion of the issues with STP Nuclear Operating Company and with other stakeholders at several public forums scheduled for the next few weeks. The draft guidelines represent a "work in progress" and are subject to change on the basis of your and other stakeholder input. These guidelines will also serve as the starting point for the development of acceptance criteria for licensees who choose to adopt the staff's risk-informed changes to the special treatment requirements published in an Advanced Notice of Proposed Rulemaking on March 3, 2000 (risk-informed Part 50, Option 2).

The NRC staff has been working with your staff to establish the appropriate threshold for the detail necessary for the NRC to make its determinations regarding granting the exemptions you requested. These guidelines were developed primarily to provide you with the NRC staff's thoughts on the criteria against which the NRC will measure your exemption requests and to solicit your feedback. However, they are intended to also provide you with insights into the level of detail expected in your exemption requests and the description of the programs and processes that will be used as the basis for the NRC's determinations regarding the exemptions. In your review of the draft guidelines for insights into the level of detail the NRC staff expects, you should consider how your current practices and programs address each of the guideline areas, if they do; then describe how these practices and programs could be used to address each area in sufficient detail for an independent organization to conclude the practices and programs are adequate to address the area. If in your review, you find the NRC staff is expecting more detail than is necessary or is requesting information in an area that you find is not needed, you should identify these to the NRC staff and provide a basis for your findings.

During the meeting on June 20 and 21, 2000, the NRC requested that you describe the processes and programs that you propose to govern the treatment of safety-related systems, structures, and components (SR SSCs) that you categorized as low safety significant (LSS) or non-risk significant (NRS) following your categorization process. You provided a description of these processes and programs to the NRC staff in an e-mail on June 13, 2000 (Enclosure 2). The NRC staff has reviewed the information you provided and found that it lacked sufficient detail for the staff to make a determination regarding the adequacy of the programs and procedures to be used to treat SR SSCs categorized as LSS or NRS. Further discussions regarding the nature of the information the NRC staff needs to conduct its review of your exemption requests will occur during the meeting scheduled for July 24 and 25, 2000.

Should you have questions regarding the draft review guidelines, please contact Mr. John A. Nakoski of my staff at 301-415-1278.

Sincerely,

/RA/

John A. Zwolinski, Director
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-498 and 50-499

cc: See next page

Enclosures:

1. Review Guidelines for STP Exemption Request and Baseline Acceptance Criteria for RIP50 Option 2

2. Elements of the South Texas Project Commercial Treatment for LSS and NRS SSCs

REVIEW GUIDELINES FOR STP EXEMPTION REQUEST AND BASELINE ACCEPTANCE CRITERIA FOR RIP50 OPTION 2

1.0 INTRODUCTION

This document contains the guidelines for reviewing the STP request per 10 CFR 21.7 and 10 CFR 50.12 for exemptions from numerous special treatment requirements. These guidelines have been assembled utilizing input from the lead technical divisions. The guidelines were reviewed by the RIP50 core team.

These review guidelines are an initial draft of the acceptance criteria to be incorporated into 10 CFR 50.69 and 10 CFR Appendix T for RIP50. [Note that the corresponding RIP50 analogy will be provided in brackets where appropriate.] The staff will continue developing the RIP50 option 2 acceptance criteria to develop a final set approved by NRR by 12/31/00.

The guidelines address the acceptability of the STP proposal [and are rev 0 for the RIP50 Option 2 acceptance criteria] in three general areas:

1. Categorization guidelines [Appendix T for RIP50]

2. Treatment guidelines (includes change control and monitoring guidelines) [50.69 for RIP50]

3. Licensing basis documentation [RG + NEI guideline + potentially UFSAR for RIP50]

2.0 CATEGORIZATION GUIDELINES

The determination of safety significance of structures, systems, and components (SSCs) must be performed as part of an integrated decision-making process which uses both risk insights and traditional engineering insights. In categorizing SSCs, it must be demonstrated that the defense-in-depth philosophy is maintained, that sufficient safety margin is maintained, and that increases in risk, if any, are small. Results of the categorization process should be maintained by use of performance measurement strategies.

To accomplish these objectives, the process to categorize SSCs should consist of the following elements:

2.1 Assessment of the Capability of the Plant-specific Probabilistic Risk Assessment (PRA) to Support the Categorization Process

At a minimum, a PRA modeling the internal initiating events at full power operations shall be used for SSC importance analysis and determination of change in risk from the application. The PRA must be capable of quantifying core damage frequency (CDF) and large early release frequency (LERF). When categorizing SSCs, the licensee shall also consider external event initiators, as well as the shutdown and low-power modes of operation, either by PRA modeling or by the integrated decision-making process.

PRA quality must be demonstrated, in a manner that is consistent with accepted practices, commensurate with the level of detail sufficient to model the impact of the proposed change. The PRA must reflect the as-built and as-operated plant and must satisfy the pertinent quality assurance requirements as specified in section 2.5 of RG 1.174 "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis."

When used for SSC categorization, and as long as regulatory requirements are being dictated by this categorization, the PRA must be updated within six months after each refueling outage provided the interval between successive updates does not exceed 24 months, to reflect changes in plant operation, design, or procedures. Updates to the PRA are mandatory prior to implementation of changes to plant design or procedures, if these changes could affect the categorization of SSCs. A PRA update is also required upon receipt of new PRA information which could invalidate the results of the categorization process. Upon the completion of a PRA update, the SSC categorization shall be revisited and updated as appropriate.

2.2 SSC Categorization by the Integrated Decision-making Panel (IDP)

An integrated decision-making panel must be used to determine the safety significance of SSCs. The categorization of SSCs as either HSS (high safety significant)/MSS (medium safety significant) [RISC-1 or RISC-2] or LSS (low safety significant)/NRS (not risk significant) [RISC-3] must consider: results of the PRA analysis; deterministic and other traditional engineering analyses; maintenance of the defense-in-depth philosophy; and maintenance of safety margins.

2.2.1 Use of PRA Insights for SSCs Explicitly Modeled in the PRA

Relative importances of SSCs modeled in the PRA should be determined using PRA importance measures or similar methodologies. The results of this process together with results of sensitivity studies shall be used as inputs to the integrated decision-making process for the categorization of SSCs.

2.2.1.1 Initial Screening Criteria

SSC importances must be determined based on both CDF and LERF. Importance measures should be chosen such that results can provide the IDP with information on the relative contribution of an SSC to total risk. Examples of importance measures that can accomplish this are the Fussell-Vesely (F-V) importance and the Risk Reduction Worth (RRW) importance. Importance measures should also be used to provide the IDP with information on the safety margin available should an SSC fail to function. The Risk Achievement Worth (RAW) importance and the Birnbaum importance are example measures that are suitable for this purpose.

In the initial screening stages, an SSC with F-V < 0.005 based on either CDF or LERF, and RAW < 2 based on either CDF or LERF can be considered as potentially LSS/NRS [RISC-3]. The low safety significance of SSCs must be confirmed based on an assessment of the overall impact of SSC re-categorization and a comparison of this impact to the acceptance criteria for changes in CDF and LERF as described in Section 2.2.1.2.

Application of the above guidelines will also identify a list of SSCs that are determined to be HSS/MSS [RISC-1 or RISC-2] by the PRA. These SSCs shall not be re-categorized as potentially LSS/NRS [RISC-3] by the IDP process.

The PRA models for external initiating events, and for low power and shutdown plant operating modes may be conservative with respect to those for internal initiating events. Use of conservative models can influence the calculation of importance measures by moving more SSCs into the low safety significance category. Therefore, when PRA models for external event initiators and for the low power and shutdown modes of operation are available, the importance measures shall be evaluated for each analysis separately, as well in an integrated manner. Results of the analyses should be provided to the IDP for deliberation.

2.2.1.2. Evaluation of the Overall Risk Impact from Reclassifying SSCs

The change in risk from reclassifying SSCs shall be quantified. The potential impact of relaxing treatment requirements on SSCs must be evaluated in an integrated manner. Changes in CDF and LERF must be estimated by calculations where the failure likelihood of SSCs is changed to the level corresponding to the failure likelihood for the revised treatment requirements.

Estimated changes to CDF and LERF must be small and consistent with the guidance in section 2.2.4 of RG 1.174.

If the impact of the revised treatment requirements cannot be easily quantified or in cases when a PRA model is not available to evaluate the change in risk from an external initiating event or plant operating mode, the IDP must provide justification, on the basis of bounding analyses or qualitative considerations, that the change in risk will be small as defined by the guidelines provided in RG 1.174.

2.2.2 <u>Use of Risk Insights for SSCs Not Modeled in PRA</u>

For SSCs that are not explicitly modeled in the PRA or when external event initiators or the low power and shutdown plant operating modes are not modeled, the IDP shall assess the safety significance of these SSCs by determining if:

(i) Failure of the SSC will significantly increase the frequency of an initiating event, including those initiating events originally screened out in the PRA.

(ii) Failure of the SSC will compromise the integrity of the reactor coolant pressure boundary. It is expected that a sufficiently robust categorization process would result in the reactor coolant pressure boundary being categorized as HSS [RISC-1].

(iii) Failure of the SSC will fail a safety function, including SSCs that are assumed to be inherently reliable in the PRA (e.g., piping and tanks) and those that may not be explicitly modeled (e.g., room cooling systems, and instrumentation and control systems). For example, it is expected for PWRs that a sufficiently robust categorization process would categorize high energy ASME Section III Class 2 piping of the main steam and feedwater systems as HSS or MSS.

(iv) The SSC supports important operator actions required to mitigate an accident, including the operator actions taken credit for in the PRA.

(v) Failure of the SSC will result in failure of safety significant SSCs (e.g., through spatial interactions).

(vi) Failure of the SSC will impact the plant's capability to reach and/or maintain safe shutdown conditions.

In addition to being safety significant (HSS/MSS) in terms of their contribution to CDF or LERF, SSCs can also be safety significant (HSS/MSS) in terms of other risk metrics or conditions. Therefore, when an SSC is not identified as safety significant (HSS/MSS) by the PRA, the IDP must establish its safety significance by determining if:

(vii) The SSC is a part of a system that acts as a barrier to fission product release during severe accidents. It is expected that a sufficiently robust categorization process would result in fission product barriers (e.g., the containment shell or liner) being categorized as at least MSS [RISC-1].

(viii) The SSC is depended upon in the Emergency Operating Procedures or the Severe Accident Management Guidelines.

(ix) Failure of the SSC will result in unintentional releases of radioactive material even in the absence of severe accident conditions.

(x) The SSC is relied upon to control or to mitigate the consequences of transients and accidents.

If any of the above ten conditions are true, the IDP should use a qualitative evaluation process to determine the impact of relaxing requirements on SSC reliability and performance. This evaluation should include identifying the functions being supported by SSC operation, the relationship between the SSC's failure modes and the functions being supported, the SSC failure modes for which the failure rate may increase, and the SSC failure modes for which detection could become more difficult. The IDP can justify low safety significance (LSS/NRS) of the SSC by demonstrating one or more of the following:

- The reclassification is consistent with the defense-in-depth philosophy (per section 2.2.3 below) and sufficient safety margin is maintained (per section 2.2.4).

- Operating experience does not indicate active failure mechanisms (e.g., for piping flow accelerated corrosion or MIC), relaxing the requirements will have minimal impact on the failure rate increase, and failures can be detected in a timely fashion.

- Relaxing the requirements will have a minimal impact on the expected onsite occupational or offsite doses from transients and accidents that do not contribute to CDF or LERF.

2.2.3. Maintaining the defense-in-depth philosophy

When categorizing SSCs as LSS/NRS [RISC-3], the IDP must demonstrate that the defense-in-depth philosophy is maintained. Defense-in-depth is considered adequate if the overall redundancy and diversity among the plant's systems and barriers is sufficient to ensure the risk acceptance guidelines are met, and that:

- Reasonable balance is preserved among prevention of core damage, prevention of containment failure or bypass, and mitigation of consequences of an offsite release

- System redundancy, independence, and diversity is preserved commensurate with the expected frequency of challenges, consequences of failure of the system, and associated uncertainties in determining these parameters

- There is no over-reliance on programmatic activities and operator actions to compensate for weaknesses in the plant design, and

- Potential for common cause failures is taken into account

2.2.4 Maintenance of safety margins

When categorizing SSCs as LSS/NRS [RISC-3], the IDP shall demonstrate that there are sufficient safety margins to account for uncertainty in the engineering analysis and in the supporting data. Safety margin shall be incorporated when determining performance characteristics and parameters (e.g., component, system, and plant capability) or when defining mission success criteria (e.g., the number of system trains required to mitigate an initiating event or the ability of an SSC to perform in a certain environment). The amount of margin should depend on the uncertainty associated with the performance parameters in question, the availability of alternatives to compensate for adverse performance, and the consequences of failure to meet the performance goals. Demonstration of available safety margins shall be accomplished by use of data from plant operations or research studies, or by use of analyses using established engineering codes and standards or NRC-approved alternatives.

2.3 Documentation of the Integrated Decision-making Process and the Decision Criteria Used

2.3.1. Requirements of the Integrated Decision-making Panel

2.3.1.1 The IDP shall be described in a formal plant procedure which includes:

(i) The designated chairman, panel members, and panel alternates;
(ii) Required training and qualifications for the chairman, members and alternates;
(iii) Requirements for a quorum, attendance records, agendas, and meeting minutes;
(iv) The decision-making process;
(v) Documentation and resolution of differing opinions; and
(vi) Implementation of feedback/corrective actions.

2.3.1.2 Expertise in the following fields shall be represented on the IDP: plant operations, design (mechanical and electrical) and materials engineering, systems engineering and operating history, safety analysis engineering, quality assurance, plant licensing, plant maintenance, and probabilistic risk assessment. Members may be experts in more than one field, however excessive reliance on any one member's judgement should be avoided.

2.3.1.3 The licensee shall establish and document specific requirements for ensuing adequate expertise levels of IDP members, and shall ensure that expertise levels are maintained. There shall be at least three members of the IDP with a minimum of five years experience at the plant, and there shall be at least one member of the IDP who has worked on the modeling and updating of the plant-specific PRA for a minimum of three years.

2.3.1.4 The IDP shall be trained in the specific technical aspects and requirements related to the categorization process. Training shall address, at a minimum,

(i) The purpose of the categorization,
(ii) Present treatment requirements for SSCs including requirements for design basis events,
(iii) PRA fundamentals, and details of the plant-specific PRA including the modeling scope and assumptions,
(iv) The defense-in-depth philosophy and requirements to maintain this philosophy.
(v) Safety margins

Each of these topics shall be covered to the extent necessary to provide the IDP with a level of knowledge sufficient to evaluate and approve SSC categorization using both probabilistic and deterministic information.

2.3.1.5 IDP decision criteria for categorizing SSCs as HSS/MSS [RISC-1 or RISC-2] or LSS/NRS [RISC-3] shall be documented. When there are differing opinions, and if a resolution cannot be achieved concerning the safety significance of an SSC, then the SSC shall be classified as HSS/MSS [RISC-1 or RISC-2].

2.3.1.6 SSC categorization shall be revisited by the IDP when the PRA is updated or when the other criteria used by the IDP are affected by changes in plant operational data or changes in plant design or plant procedures or information developed by the corrective action program.

2.3.2 <u>Documentation of the IDP process</u>

The following shall be documented and available for NRC review:

- Results of the relative risk importance of SSCs modeled in the PRA including the results of sensitivity analyses.

- Results of the final SSC categorization including a summary of IDP deliberations for each SSC classified as LSS/NRS [RISC-3] and each non-safety-related SSC classified as HSS/MSS [RISC-2]. Technical basis documents used to support the categorization shall also be available.

- The overall change in plant risk as a result of changes in treatment requirements, including the baseline CDF and LERF and the change in this CDF and LERF.

- Requirements for the IDP including, the plant procedure, expertise, membership, training, and decision-making guidelines.

- The PRA used and the supporting analyses, together with a description assuring the quality of PRA.

2.4 Changes to the Decision-making Process and Guidance Criteria

At this time guidelines for controlling changes to the decision-making process and guidance criteria have not been developed. The staff has developed alternative approaches to implementing a change control process into the exemption and is evaluating whether the exemption process can accommodate each approach.

3.0 TREATMENT GUIDELINES

Safety-related SSCs remain under regulatory control of the *Code of Federal Regulations*, although the extent of special treatment requirements may be reduced or eliminated commensurate with the safety importance of the individual SSCs. The design and functional requirements of the facility continue to be satisfied (e.g., the capability of electrical and mechanical SSCs to perform their safety functions at seismic and environmental design conditions). Sufficient process controls will be retained to demonstrate the capability of safety-related SSCs to perform their safety functions (initially and on a continuing basis) with the level of confidence commensurate with the safety importance of the individual SSC. The key attributes of the procedures and processes that ensure safety-related SSCs remain functionally capable will be described in an appropriate licensee document.

3.1 Safety-related SSCs categorized as HSS or MSS [RISC-1]:

3.1.1 All special treatment requirements must continue to be applied to these SSCs.

3.1.2 In addition to the special treatment requirements, the following also apply:

(a) For beyond design basis (DB) safety significant functions, the licensee must validate assumptions credited in the risk assessment for SSCs that support or perform these beyond DB functions. In this regard, the risk assessment may be assuming that the SSC performs an entirely different function (for example--valve needs to close when its DB function is to open), or the SSC may be performing the same DB function but at beyond DB limits (for example, expecting the component to maintain integrity to its ultimate failure point), or performing the DB function or a beyond DB function in an environment outside its DB envelope (for example without room coolers). The validation shall consist of a documented engineering evaluation.

(b) The performance of these SSCs must be monitored at the train or component level and all failures must be evaluated. If 10 CFR 50.65 is utilized to meet this requirement, it must be supplemented to monitor all functional failures not just maintenance preventable failures.

(c) Following facility changes that affect safety significant beyond DB functions, an evaluation must be performed and documented that concludes there continues to be reasonable assurance that safety significant beyond DB functions continue to be satisfied and that the credit taken in the categorization process continues to be validated.

(d) Evaluations are performed to determine whether enhanced treatment is warranted for SSCs categorized as HSS or MSS [RISC-1] to assure that the beyond DB safety significant function is satisfied.

3.2 Nonsafety-related SSCs categorized as HSS or MSS [RISC-2]:

3.2.1 Any applicable special treatment requirements continue to apply to these SSCs.

3.2.2 In addition to any applicable special treatment requirements, the following also apply:

(a) The licensee must validate the assumptions credited in the risk assessment for these SSCs. The validation shall consist of a documented engineering evaluation.

(b) The performance of these SSCs must be monitored at the train or component level and all failures must be evaluated. If 10 CFR 50.65 is utilized to meet these requirements, it must be supplemented to monitor all failures not just maintenance preventable failures.

(c) Following facility changes that affect safety significant functions, an evaluation must be performed and documented that concludes there continues to be reasonable assurance that safety significant functions continue to be satisfied.

(d) Evaluations are performed to determine whether enhanced treatment is warranted for SSCs categorized as HSS or MSS [RISC-2] to assure that the safety significant function is satisfied.

3.3 Safety-related SSCs categorized as LSS or NRS [RISC-3]:

3.3.1 <u>10 CFR 50.59</u>

10 CFR 50.59 shall continue to apply to the technical requirements associated with the LSS and NRS [RISC-3] safety-related SSCs (i.e., the special treatment requirements are no longer applicable to these SSCs). Regarding the facility change to remove these SSCs from the scope of the special treatment requirements, there is an exemption [footnote to 50.59 for RIP50] to change the safety significance categorization (but not the safety-related and nonsafety-related classification) for SSCs in accordance with the STP risk-informed categorization [Appendix T] without the need for an associated 10 CFR 50.59 safety evaluation to accompany the categorization (i.e., the categorization process is sufficiently robust to address 50.59 issues for removing special treatment requirements and as such it is redundant to require an additional 50.59 evaluation to support the risk-informed categorization).

3.3.2 <u>Design, Procurement, Installation, Operation, and Maintenance Processes</u>

LSS and NRS [RISC-3] SSCs shall be designed, procured, installed, operated, and maintained using balance of plant (BOP) commercial practices with the attributes described in Section 3.5

such that they remain capable of performing their design functions. Functional capability can be addressed through the BOP commercial practices, or to the extent these processes do not address design functionality, an engineering evaluation may be performed that concludes functional capability is maintained.

3.3.3 Monitoring Requirements

The performance and condition of LSS and NRS [RISC-3] safety-related SSCs shall be monitored consistent with the assumptions made in the risk assessment and to provide adequate assurance of continued functionality. BOP commercial practices, if used shall encompass the attributes described in Section 3.5 related to monitoring. Failed and/or degraded condition shall be repaired and/or restored in accordance with the licensee's corrective action process. The results of this monitoring shall be incorporated into the categorization process.

3.4 Nonsafety-related SSCs categorized as LSS or NRS [Out-of-scope]:

3.4.1 No additional requirements are necessary to implement the STP exemption.

3.5 Minimal Acceptable Commercial Practices and Controls

The following aspects of BOP commercial processes to be applied to safety-related SSCs categorized as having low individual risk significance (LSS/NRS SSCs) at South Texas Project need to be addressed to allow the NRC staff to reach a conclusion with a sound engineering basis that these SSCs will perform their specified safety functions. The acceptable level of confidence in the functionality of safety-related LSS/NRS SSCs will be lower than the level of confidence in the functionality of safety-related HSS and MSS SSCs. BOP commercial practices shall ensure functional requirements of the facility continue to be satisfied (e.g., the capability of electrical and mechanical SSCs to perform their safety functions at seismic and environmental design conditions). The BOP commercial practices and controls utilized for any or all aspects of HSS, MSS, LSS, or NRS safety related SSCs [RISC-1, RISC-2, RISC-3 SSCs] shall satisfy the following minimum programmatic criteria:

3.5.1 Design Process

3.5.1.1 Maintenance of design inputs and functional requirements. This includes (1) the capability of electrical, instrumentation and control system components and mechanical components to withstand a seismic event using the appropriate structural design response spectra including component level seismic and other applicable loads in combination; and (2) the capability of electrical and instrumentation and control system components to withstand a harsh environment based on the environmental envelope.

3.5.1.2 Repair, replacement or modification of pressure-retaining capability of ASME Class 2 and Class 3 systems using nationally recognized consensus standards.

3.5.1.3 Accomplishment of design activities in accordance with commercially accepted national consensus standards as applicable and to the extent that national consensus standards exist for a subject.

3.5.2 Procurement Process

3.5.2.1 Sufficient engineering basis for the acceptance of the SSC based on design specifications including the original design inputs and assumptions.

3.5.2.2 Accomplishment of procurement in accordance with commercially accepted national consensus standards as applicable and to the extent that national consensus standards exist for a subject meeting the requirements of the design standard.

3.5.2.3 Shipping, storage and handling requirements consider vendor recommendations or a documented basis for alternatives.

3.5.2.4 Receipt inspection to ensure that the procured SSC matches the design specifications.

3.5.3 Installation Process

3.5.3.1 Preoperational and preservice testing and evaluation to assure proper installation and operation.

3.5.3.2 Installation in accordance with commercially accepted national consensus standards as applicable and to the extent that national consensus standards exist for a subject meeting the requirements of the design standard.

3.5.4 Maintenance Process

3.5.4.1 Preventive maintenance considering vendor recommendations or documented basis for alternatives to ensure continued SSC functionality.

3.5.4.2 Corrective maintenance to implement corrective action process.

3.5.4.3 Post-maintenance testing and evaluation (including examination and testing of repaired items) to assure proper performance of maintenance and subsequent operation.

3.5.4.4 Maintenance in accordance with commercially accepted national consensus standards as applicable and to the extent that national consensus standards exist for a subject.

3.5.5 Inspection, Test, and Surveillance Process

3.5.5.1 Inspection, test, and surveillance considering vendor recommendations or documented basis for alternatives to ensure continued SSC functionality under design basis conditions and including the potential for service induced aging.

3.5.5.2 Activities accomplished in accordance with commercially accepted national consensus standards as applicable and to the extent that national consensus standards exist for a subject.

3.5.6 Corrective Action Process

(The NRC recognizes that STPNOC has not requested exemptions from the 10 CFR 50, Appendix B, Criterion XV or XVI related to nonconformances and corrective actions.)

3.5.6.1 Corrective action process to determine and feedback the cause of conditions adverse to quality (e.g., identified from the inspection, test and surveillance process and maintenance process) and to resolve the adverse condition.

3.5.6.2 Activities planned and accomplished in accordance with written approved and controlled procedures.

3.5.7 Management and Oversight Process

3.5.7.1 Activities planned and accomplished in accordance with written approved and controlled procedures.

3.5.7.2 Assessments and follow-up actions.

3.5.7.3 Training and qualification of plant personnel considering vendor recommendations and in accordance with commercially accepted national consensus standards as applicable and to the extent that national consensus standards exist for a subject.

3.5.7.4 Documentation to support Section 3.5 processes.

3.5.7.5 Control of inspection, test and surveillance equipment.

3.5.8 Configuration Control Process

3.5.8.1 Configuration control of SSCs and plant documents (e.g., procedures and drawings) to reflect current plant status and design changes.

4.0 LICENSING BASIS DOCUMENTATION GUIDELINES

4.1 STPNOC's exemption request should provide the basis to support granting the exemptions as a stand alone document.

4.2 STP has requested that all commitments associated with safety-related LSS and NRS SSCs be deleted. Commitments should continue to be managed in accordance with the NRC-endorsed commitment management guidelines in NEI 99-04, "Guidelines for Managing NRC Commitment Changes." If there are regulatory obligations associated with certain commitments for LSS and NRS SSCs for which STP believes an exemption is warranted, STP should explicitly identify these requirements and the basis for granting these additional exemptions.

Elements of the South Texas Project Commercial Treatment for LSS and NRS SSCs

NOTE: The following detailed information is intended for discussion purposes only in order to offer insights into the STP commercial treatment program. The information provided does not suggest any new commitments, nor does it reflect the recommended level of detail that would be committed to in the FSAR or similar document.

Background

This section will be provided later.

Introduction

The South Texas Project does not have a specific procedure or program labeled as a "Commercial Treatment Program". Rather, the commercial treatment elements are contained in numerous plant programs and procedures. These programs and procedures have been successfully implemented on the non-nuclear Balance of Plant portion of the Station, and have been effective in maintaining the availability and reliability of the secondary plant. These commercial treatment elements have also been proven to provide adequate assurance that the Balance of Plant SSCs satisfy their design functional requirements. With the grant of the exemption request to remove special treatment from LSS and NRS safety-related SSCs, the application of these commercial treatment elements will provide adequate assurance, commensurate with their safety significance, that these SSCs will satisfy their design functional requirements. Commercial treatment provides an effective means of addressing the controls for LSS and NRS safety-related SSCs.

The following summarizes the **Commercial Treatment** elements currently in place at the South Texas Project, and will be implemented on LSS and NRS safety-related SSCs when the exemption request is granted:

I. SSC Monitoring Program

The Maintenance Rule (MR) program is a regulatory mechanism which provides the basis for the performance monitoring program. LSS and NRS safety-related SSCs will be monitored at the plant level unless a risk significant function is lost, in which case, the SSC will be monitored at the appropriate system/train level. The MR Program includes classifying SSC performance in accordance with established criteria and goals, ensuring proper corrective actions occur when performance criteria are not met, and periodically evaluating overall program effectiveness.

In addition to the Maintenance Rule, SSCs are monitored by routine Operator rounds, System Engineer walkdowns and resulting System Health Reports, GQA Working Group periodic system reviews, and Corrective Action Program performance thresholds.

II. Corrective Action Program

STP is not seeking exemption from Appendix B, Criterion XVI 'Corrective Action'. Therefore, LSS and NRS SSCs will continue to be subject to the existing Corrective Action Program which satisfies Appendix B. Additional insights into the existing Corrective Action Program are offered below.

The Corrective Action Program (CAP) establishes the means to identify and document deficiencies in programs, processes, and SSC conditions (e.g., failures, malfunctions, deviations, material defects, nonconformances, etc), and provides the means for such deficiencies to be corrected in a timely manner for LSS and NRS SSCs. The Station expectation is that deficiencies are identified and corrected at the lowest possible level. It is expected that when a deficiency is identified, that a Condition Report is generated to document the deficiency and to track the deficiency to resolution. The Corrective Action Program provides for appropriate supervisory and licensed operator review of the deficiency to evaluate the potential impact on the component safety function and Station operation, and to ensure that a reasonable and timely disposition of the deficiency is obtained.

Apparent/root causes of the identified condition may be determined, if appropriate, and corrective actions will be documented and assigned to a responsible owner to assure timely and accurate resolution consistent with the safety functions. The program provides for the resolution of overdue corrective actions through escalation to higher levels of management, and for the trending of deviating conditions.

Following correction of an SSC deficiency, appropriate post-maintenance testing is performed to ensure that the deficiency has been properly corrected and that no new deficiency has been introduced. The post-maintenance testing provides additional assurance that the subject SSC has been returned to its design functional condition.

III. Preventive Maintenance (PM) Program

The Preventive Maintenance (PM) Program provides for the identification, scheduling, and assessment of routine preventive maintenance activities on LSS and NRS SSCs. The PM Program focuses on maintenance activities that assure SSCs will continue to reliably satisfy their design functional requirements. As appropriate, PM activities factor in SSC critical attributes, historical performance, and 'good maintenance practices'. PM activities can include routine maintenance checks, inspections, replacements, tests, adjustments, and calibrations. If a deficiency is identified during the performance of a preventive maintenance activity, the deficiency may be corrected through a one-time expansion of the PM work instructions. If the deficiency cannot be corrected under the PM activity, then a Condition Report is generated to document and track the deficiency to resolution. Deficiency resolution is accomplished via the Corrective Action Program. Appropriate post-maintenance testing is performed, if necessary, to ensure that the SSC is performing within expected parameters prior to being returned to service.

Through the performance of routine checks, inspections, replacements, tests, adjustments, and calibrations, the PM Program further contributes to adequate assurance that SSCs will continue to satisfy their design functional requirements.

IV. Predictive Maintenance Program

The Predictive Maintenance Program provides for periodic, proactive testing of selected SSCs to identify a decline in performance or in material condition before other indications identify the condition. Predictive Maintenance activities include periodic lube oil analyses on large motors and pumps, vibration analyses of rotating equipment, thermographic analyses of both mechanical and electrical SSCs to identify improper temperature conditions or electrical hot-spots, acoustic analysis for valve leak-by or SSC leakage, and motor potential diagnostic testing. If a deficiency is identified during these inspections or analyses, then a Condition Report is generated to document the degraded condition and to track the condition to resolution.

Predictive Maintenance activities aid in ensuring that SSCs continue to perform reliably and provide additional confidence that the SSC design functional requirements will be available when required.

V. Design Change Program

STP is not seeking exemption from Appendix B, Criterion III 'Design Control'. Therefore, LSS and NRS SSCs will continue to be subject to the existing design control program which satisfies Appendix B. Additional insights into the existing Design Change Program are offered below.

LSS and NRS SSCs remain under the Station's Design Change Program. The Design Change Program establishes appropriate controls over the design basis of the Plant. The Design Change Program defines the controls necessary to ensure safe implementation of station design changes (including temporary modifications), and provides adequate assurance that changes to the facility are implemented consistent with the information contained in the Station's licensing bases.

For LSS and NRS SSCs which were originally constructed to Section III of the ASME Code, non-Code replacement SSCs will be procured which meet the materials and stress levels of the original component. This approach is analogous to the ASME Code Section XI criteria for small size (1" and under) replacements. The material for the replacement SSC will be the same specification and grade as the original SSC, and the stress levels are analyzed by the same analysis and allowables as for the original component, i.e., ASME Code Section III, including the original seismic analysis and other load cases. Therefore, the design basis functionality requirements are met through analysis although the level of assurance for the replacement SSC is at a lower level, however, it is commensurate with its lower risk categorization. The identicality of the material specification and grade assures that other (non-analytical) aspects important to functionality, such as resistance to corrosion mechanisms, are not degraded.

Design changes are evaluated under the 10CFR50.59 process, and are implemented through a generated Condition Report. ~~.~~ As necessary and appropriate, post-modification testing is performed to validate the capability of a modified SSC to meet specified functional design requirements and design bases before being placed in service.

The design change process includes a provision for assessing and managing the change in risk from equipment design changes and their impact upon the PRA model.

VI. Procurement Program

The procurement of SSCs is controlled by administrative procedures that implement the appropriate quality assurance elements to ensure that design functional requirements are satisfied. These procurement and materials management practices are consistent with the functional requirements of the SSC being procured. The purchase of safety-related LSS and NRS parts using commercial treatment would be accomplished through an engineering evaluation. The evaluation would compare the form, fit, and function of the replacement SSC and would document the evaluation per the Item Equivalency Evaluation procedure. This procedure follows the guidance of EPRI Report NP-6406, 'Technical Evaluation of Replacement Items Guideline'. The procedure requires that critical characteristics for design functions are selected, and a comparison of existing and proposed critical characteristics is made and justified. This engineering evaluation ensures that the proposed replacement will perform the design function with reasonable assurance. The Engineering evaluation does not result in a part dedication. Where the proposed change involves a component (an assembly of parts), a Design Change will be used in most cases. The design change process discussed above will be utilized.

Upon completion of the engineering evaluation, a purchase order (PO) will be issued. There will be a requirement in each purchase order that no substitutions are allowed unless written permission is granted by Engineering.

As necessary, the Procurement Program includes the following attributes: receipt inspections, ~~and~~ special handling and storage procedures, and ~~.~~appropriate assurance that the technical information included in the purchase specification or order is consistent with the plant's design requirements.

These commercial treatment practices provide reasonable assurance that safety-related LSS and NRS SSCs will satisfy their design functional requirements. If the evaluations discussed above do not demonstrate the necessary assurance of functionality, then additional testing may be pursued or a qualified component will be procured.

VII. Procedure Program

Technical and administrative procedures are established and implemented as appropriate to support the expected range of maintenance and operational activities. The need for written and approved procedures are determined based upon complexity and importance to the SSC safety functions. Procedural controls include the provision to allow personnel to stop the process, and

through the corrective action program, to change the controls or processes to ensure safety functions are satisfied. The Procedure Program further establishes the processes for the development, review, and approval of new procedures, procedure revisions, procedure changes and procedure deletions as well as the performance of periodic procedure reviews.

VIII. PRA Model Updates

The PRA configuration control program incorporates a feedback process to update the PRA on a frequency not to exceed 36 months, however, the Model may be updated on a more frequent basis if certain criteria exists. The update may incorporate applicable "state-of-the-art" changes relative to PRA technology. Additionally, the PRA updates will incorporate plant design changes that affect the PRA and have been implemented since the last update, as well as updated data on modeled SSC performance.

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IX. Work Control

The Work Control program provides the process for identifying, controlling, and documenting work activities, including implementing design changes, at the Station. The program ensures that the processing of work activities supports the completion of work in a safe and timely manner. Planned work instructions are generated, if necessary, to ensure that the safety function of the SSC is preserved. Consistent operational controls govern the status of SSCs as work progresses. The Work Control program also identifies the documentation, review, and retention requirements of the completed work activities.

X. Work Planning and Scheduling

Work activity planning and scheduling is governed by the standard Station scheduling program. This program provides the requirements and guidelines for planning and scheduling maintenance and other work activities. In support of maintenance activity performance, LSS and NRS SSCs are removed from service in logical groupings approximately four times per year. This scheduling methodology aids in ensuring that work activities on LSS and NRS SSCs are completed in a timely manner.

The Work Planning and Scheduling program addresses the following activities:

- Corrective and preventive maintenance
- On-line maintenance
- Inspection/testing
- Installation of design changes

XI. Configuration Control Program

SSCs are tagged and are manipulated by qualified Operations personnel. The Configuration Control Program manages and controls the physical changes (procedural and equipment) to the facility to assure that the plant configuration and practices correctly reflect the ~~approved~~ licensing bases.

XII. Feedback Process

SSC performance is periodically assessed by the GQA Working Group to ensure that the expected level of SSC performance is achieved. If an SSC fails to satisfy performance expectations, the commercial controls are evaluated and may be adjusted as necessary to provide appropriate and applicable treatment to the SSC. Following the adjustment of controls, SSC performance will continue to be assessed to ensure that the adjustment to controls has accomplished the desired level of reliability and availability.

XIII. Assessment Program

Assessments are implemented to provide adequate assurance that the performance criteria are being achieved and are effective. The type, frequency and degree of specificity of assessments are determined by the importance to the safety functions and the performance history of structures, systems, components, or the work activity being evaluated.

Assessments may be in the form of reviews, monitoring, tests, surveillances, inspections, audits or examinations, as appropriate. These assessments are performed by line organizations or personnel, by management, or by independent internal or external organizations or groups. The importance to the safety function and performance history determines the degree of management and technical oversight. Personnel performing assessments are qualified through training, work experience, or certification.

During the meeting on June 20 and 21, 2000, the NRC requested that you describe the processes and programs that you propose to govern the treatment of safety-related systems, structures, and components (SR SSCs) that you categorized as low safety significant (LSS) or non-risk significant (NRS) following your categorization process. You provided a description of these processes and programs to the NRC staff in an e-mail on June 13, 2000 (Enclosure 2). The NRC staff has reviewed the information you provided and found that it lacked sufficient detail for the staff to make a determination regarding the adequacy of the programs and procedures to be used to treat SR SSCs categorized as LSS or NRS. Further discussions regarding the nature of the information the NRC staff needs to conduct its review of your exemption requests will occur during the meeting scheduled for July 24 and 25, 2000.

Should you have questions regarding the draft review guidelines, please contact Mr. John A. Nakoski of my staff at 301-415-1278.

Sincerely,

/RA/
John A. Zwolinski, Director
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-498 and 50-499

cc: See next page

Enclosures:

1. Review Guidelines for STP Exemption Request and Baseline Acceptance Criteria for RIP50 Option 2

2. Elements of the South Texas Project Commercial Treatment for LSS and NRS SSCs

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